In the Claims: Amend the claims as follows.

1. (currently amended) A device for testing a neutral electrode ~~(1)~~ for use in electrosurgery, comprising a measuring surface ~~(25)~~ which is formed by a plurality of measuring electrodes ~~(20)~~, whereon the neutral electrode ~~(1)~~ may be applied, wherein each measuring electrode ~~(20)~~ of the measuring surface ~~(25)~~ is connected to an equivalent resistance circuit ~~(70)~~ representing ~~at least one layer~~ layers of the human skin, including at least ~~e.g. the epidermis, the corium and~~ the hypodermis including fatty tissue, and consisting of at least two resistances ~~(41, 42, 43, 54)~~, ~~which~~ wherein the equivalent resistance circuit ~~(70)~~ is in thermal contact with at least one temperature sensor ~~(90)~~ having a spatial measuring range, characterized in that at least one resistance of the equivalent resistance circuit ~~(70)~~ is formed by a reactive resistance ~~(54), wherein the resistance of the equivalent resistance circuit (70)~~ representing the hypodermis ~~is formed by the reactive resistance (54)~~ including fatty tissue for varying the thickness of the hypodermis including fatty tissue, without an increase in temperature.

2. (currently amended) The device according to claim 1, characterized in that the reactive resistance is formed by a capacitance ~~(54)~~.

3. (cancelled)

4. (currently amended) The device according to any one of claims 1 to 2, which is connectable to an alternating voltage source when the neutral electrode ~~(1)~~ is applied, characterized in that the alternating voltage source ~~(3)~~ has a variable frequency.

5. (currently amended) The device according to any one of the claims 1 to 2, characterized in that the measuring electrodes ~~(20)~~ with the associated equivalent resistance circuits ~~(70)~~ are arranged in the form of a matrix of columns and rows ~~(65, 66, 67)~~.

6. (currently amended) The device according to claim 5, characterized in that each equivalent resistance circuit ~~(70)~~ has a central node which is connected to one terminal each of four horizontal equivalent resistances ~~(42)~~ and to one terminal each of a first and a second vertical equivalent resistance ~~(41, 43)~~, wherein the other ends of the horizontal equivalent resistances ~~(42)~~ are connected to the horizontal equivalent resistances ~~(42)~~ of the equivalent resistance circuits ~~(70)~~ adjacent in the column and row directions, and wherein the other terminal of the first vertical equivalent resistance ~~(41)~~ is connected to the measuring electrode ~~(20)~~ and the other terminal of the second vertical equivalent resistance ~~(43)~~ is connected to ground via the reactive resistance ~~(54)~~.

7.(currently amended) The device according to claim 5, characterized in that the equivalent resistance circuits ~~(70)~~ associated with the measuring electrodes ~~(20)~~ arranged along the periphery of the measuring surface ~~(25)~~ are each connected to a peripheral impedance circuit ~~(60)~~ with at least one associated temperature sensor.

8.(currently amended) The device according to claim 7, characterized in that each peripheral impedance circuit ~~(60)~~ is connected to the terminal of the horizontal equivalent resistance ~~(42)~~, which is unconnected at the periphery, of the equivalent resistance circuit ~~(70)~~ associated with the measuring electrode ~~(20)~~ situated at the periphery of the measuring surface ~~(25)~~.

9.(currently amended) The device according to claim 7, characterized in that each peripheral impedance circuit ~~(60)~~ consists of ~~one or more, preferably~~ two, serially connected peripheral cells ~~(71)~~, wherein each peripheral cell ~~(71)~~ has a central node connected to one terminal each of four horizontal peripheral resistances ~~(42')~~, which correspond to the horizontal equivalent resistances ~~(42)~~, and to the terminal of a vertical peripheral resistance ~~(43')~~, which corresponds to the second vertical equivalent resistance ~~(43)~~, wherein the other ends of the horizontal peripheral resistances ~~(42')~~ are connected to the horizontal equivalent resistance ~~(42)~~ or the horizontal peripheral resistance ~~(42')~~ of the equivalent resistance circuits ~~(70)~~ or peripheral cells ~~(71)~~ adjacent in the column and row directions, and wherein the other terminal of the vertical peripheral resistance ~~(43')~~ is connected to ground via the reactive resistance ~~(54)~~.

10.(currently amended) The device according to claim ~~5~~ 7, characterized in that each peripheral impedance circuit ~~(60)~~ is connected to ground via a terminal resistance circuit ~~(153, 154)~~.

11.(currently amended) The device according to claim 5, characterized in that for each row ~~(65, 66, 67)~~ or each column of the matrix of measuring electrodes ~~(20)~~ and associated equivalent resistance circuits, a common horizontal equivalent resistance ~~(61)~~ representing the ~~muscle layer~~ layers of the human skin is provided which is arranged outside the spatial measuring range of the temperature sensor ~~(90)~~.

12.(currently amended) The device according to claim 11, characterized in that one terminal of the common horizontal equivalent resistances ~~(61)~~ is connected to the equivalent

resistance circuits ~~(70)~~ associated with the measuring electrodes ~~(20)~~ of the row ~~(65, 66, 67)~~ or of the column.

13.(currently amended) The device according to any one of claims 1 to 2, characterized in that the temperature sensors in thermal contact with the equivalent resistance circuits ~~(70)~~ are formed in a generally known manner by bipolar transistors ~~(90).~~

14.(currently amended) Method of use of a device, the device comprising a measuring surface ~~(25)~~ which is formed by a plurality of measuring electrodes ~~(20)~~, whereon a neutral electrode ~~(1)~~ may be applied, wherein each measuring electrode ~~(20)~~ of the measuring surface ~~(25)~~ is connected to an equivalent resistance circuit ~~(70)~~ representing ~~at least one layer~~ layers of the human skin, ~~e.g., the epidermis, the corium and~~ including at least the hypodermis including fatty tissue, and consisting of at least two resistances ~~(41, 42, 43, 54)~~, which equivalent resistance circuit ~~(70)~~ is in thermal contact with at least one temperature sensor ~~(90)~~, characterized in that at least one resistance of the equivalent resistance circuit ~~(70)~~ is formed by a reactive resistance ~~(54)~~, ~~wherein the resistance of the equivalent resistance circuit (70)~~ representing the hypodermis ~~is formed by the reactive resistance (54)~~ including fatty tissue, the method comprising monitoring a neutral electrode contact quality monitoring circuit (CQM) of an electrosurgical apparatus.

15.(currently amended) A device for testing a neutral electrode ~~(1)~~ for use in electrosurgery, comprising a measuring surface ~~(25)~~ which is formed by a plurality of measuring electrodes ~~(20)~~, whereon the neutral electrode ~~(1)~~ may be applied, wherein each measuring electrode ~~(20)~~ of the measuring surface ~~(25)~~ is connected to an equivalent resistance circuit ~~(70)~~ representing ~~at least one layer~~ layers of the human skin, including at least ~~e.g. the epidermis,~~

~~the corium and~~ the hypodermis including fatty tissue, and consisting of at least two resistances ~~(41, 42, 43, 54)~~, which equivalent resistance circuit ~~(70)~~ is in thermal contact with at least one temperature sensor ~~(90)~~, wherein the measuring electrodes ~~(20)~~ are provided on one side of a measuring circuit board ~~(99)~~ forming the measuring surface ~~(25)~~ and the resistances ~~(41, 42, 43, 54)~~ of the associated equivalent resistance circuits ~~(70)~~ are arranged on the opposite side of the measuring circuit board ~~(99)~~, characterized in that the temperature sensors ~~(90)~~ are arranged on a further circuit board ~~(94)~~ which is spaced from the measuring circuit board ~~(99)~~ by a drilled board ~~(97)~~ provided with through holes ~~(98)~~, wherein the temperature sensors ~~(90)~~ facing the resistances ~~(41, 42, 43, 54)~~ of the equivalent resistance circuits ~~(70)~~ project into the through holes ~~(98)~~ of the drilled board ~~(97)~~.

16.(currently amended) The device according to claim 15, characterized in that the measuring electrodes ~~(20)~~ are arranged in the form of a matrix <u>on the drilled board with through holes</u> and that the through holes ~~(98) of the drilled board (97)~~ are arranged concentrically with the centers of the measuring electrodes.

17.(currently amended) The device according to claim 15 or 16, characterized in that the space between the resistances ~~(41, 42, 43, 54)~~ of the equivalent resistance circuits ~~(70)~~ and the temperature sensors ~~(90)~~ within the through holes ~~(98)~~ is filled with a heat-conducting material.

18.(currently amended) The device according to claim 15 or 16, characterized in that the space between the resistances ~~(41, 42; 43, 54)~~ of the equivalent resistance circuits ~~(70)~~ is filled with a heat-insulating material.

19.(currently amended) The device according to any one of the claims 15 to 16, characterized in that the resistances ~~(41, 42, 43, 54)~~ of the equivalent resistance circuits ~~(70)~~ and the temperature sensors ~~(90)~~ are formed by SMD components.

20.(currently amended) The device according to any one of the claims 15 to 16, characterized in that the resistances ~~(41, 42, 43, 54)~~ of the equivalent resistance circuits ~~(70)~~ are arranged in the immediate vicinity of the associated measuring electrode ~~(20)~~ on the opposite side of the measuring circuit board ~~(99)~~ and are connected to it via at least one feedthrough ~~(29)~~.